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ABSTRACT

The Information Technology Project (ITP) at Clayton College & State University (CCSU) (Georgia) focuses on information technology as a central part of teaching and learning, primarily through Universal Personal Information Technology Access (UPITA). UPITA equips each student and faculty member with a powerful multimedia notebook computer with remote communications capability, including "anywhere" dial-in access to the CCSU and Floyd College (Georgia) campuses, GALILEO--the state's digital library, the Internet, the World Wide Web, and e-mail. The introduction to this paper provides an overview of the ITP, including CCSU's goals, the faculty's role, using the computers in the classroom and in the learning center, training students in the use of their notebook computers and software, and similar efforts at other institutions. The challenges of providing equal access to disabled students are addressed, specifically the challenges of accommodating low vision/blind students and the physically impaired. Opportunities related to input modifications, output modifications, and supplemental accommodations are considered. It is concluded that students with practically any type of disability that limits their ability to access data vital to ITP and to their learning at CCSU are now accommodated. (AEF)

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Accessing ITP: Accommodating the Disabled

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INTRODUCTION

On March 10, 1997, the Board of Regents of the University System of Georgia voted their unanimous approval of a proposal put forward by the presidents of Clayton College & State University (CCSU) and Floyd College (a two-year institution in Rome, GA) to make information technology a centerpiece of every aspect of the institutions' mission and operations. This initiative, **The Information Technology Project** or ITP, is the first such effort within the University System of Georgia and one of the first of its kind in the nation.

ITP focuses on information technology as a central part of teaching and learning - primarily through UPITA™ (Universal Personal Information Technology Access). UPITA equips each student (and faculty member) with a powerful multimedia notebook computer with remote communications capability, including "anywhere" dial-in access to the CCSU & Floyd campuses, GALILEO (the state's digital library), the Internet, the World Wide Web and e-mail.

Through UPITA, CCSU provides every student with a notebook computer on a quarterly basis. The notebook is used in class or across campus, at home, or anywhere the student takes it. Students pay a quarterly fee to cover a portion of the costs of the notebook, remote access and support services. Any student who prepays tuition and fees when preregistering for the next quarter can retain use of the notebook computer through the break between terms and continue to utilize the computer and its accompanying services (e.g., walk-up and call-in help). Since the University (instead of the students) is purchasing the notebook computers, the University received major educational discounts on computing software. This discount allows the student to receive the best software and hardware available at a moderate cost.

CCSU also is a "Going the Distance" school. This means that the University offers the associate degree in Integrative Studies entirely through telecourses and other distance learning methods in collaboration with the Public Broadcasting Service (PBS), Georgia Public Broadcasting (GPB) and local cable providers. These courses are enhanced by faculty-student interaction using the notebook computers to communicate in real time and by e-mail.

Universal Personal Information Technology Access (UPITA), is a program to provide each CCSU student with a notebook computer and Internet access. Costs of support, assistance and repair are

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shared between students and CCSU, and matches for funds generated from the state lottery and allocated to the institution by the Regents.

CCSU's Goals

-Provide students with state-of-the-art technology to enhance their current and future careers;
-Improve dramatically the quality of the education offered students;
-Expand and improve on- and off-campus services to all students;
-Improve institutional flexibility and capability to acquire, use, support and improve continuous information technology, and
-Reduce institutional reliance on state funding for information technology.

Each student will have personal use of a current, powerful multimedia computer, Internet access and user support services at a cost well below an individual's lease or purchase price for the machine alone.

The Faculty's Role

Information technology and notebook computers are central to teaching at Clayton College & State University. Each faculty member has been provided with Ws/her own notebook computer and training in the use of the notebook computer. All newly hired faculty are expected to bring to their positions experiences with instructional technology.

Using the Computers in the Classroom and in the Learning Center

Classrooms have been renovated to allow students to plug in the notebook computer and have access to the campus network. The recently renovated Learning Center contains more than 275 such connections.

Training students in the use of their notebooks and software

Every quarter, courses are provided during the day, at night and on weekends to train students in notebook use. These training sessions are available at the beginning of each quarter as well as after the quarter is in progress. They are convenient for students who work.

Other Institutions' and ITP

Among public colleges and universities, only the University of Minnesota at Crookston, a small baccalaureate institution, has much experience with such an institution-wide effort.

THE CHALLENGES

Prior to the implementation of ITP at CCSU, issues regarding access by our disabled student population began to emerge. According to Section 504 of *The Rehabilitation Act of 1973*, and the *Americans with Disabilities Act, 1990 (ADA)*, individuals with disabilities cannot be excluded from

participation in programs covered by Title Two of the ADA, which includes public colleges and universities. As CCSU began to implement ITP, then, the university also had to address the problem of providing equal access to disabled students. Obviously, several issues and problems appeared quickly. Primarily, the problems were directly related to the various disabilities seen on college campuses. For example, the learning disabled comprise a fair portion of a disabled student population, and this group has specific needs with regards to academic/programmatic accommodations. Low vision students, blind students, students with mobility and neurological impairments, amputees, and other special types of disabilities or combinations such as deaf and blind also present specific and many times highly individualized needs. Furthermore, each disability type may require accommodations that vary widely from other students' needs. Of course the university could not wait until a particular need arose to address it since most likely a good portion of the quarter would lapse before the appropriate accommodation could be put in place. Likewise, obtaining special equipment, software, hardware, etc. on an individual basis would present not only an undue financial hardship considering that much such equipment is so individualized that use by other students is not reasonable. Consequently, the Disability Services Coordinator/ADA Compliance Officer sought solutions to these problems proactively with ITP personnel and Student Services administration. The problem was addressed by considering generalized and somewhat homogenous groups of disabilities as they were related with regards to the type of accommodation that would most effectively serve the group's majority. These groups split into two distinct sets.

The Challenge of Accommodating Low Vision/Blind Students

This group set presents a unique as well as difficult challenge. So much of the essence and heart of using computer technology rests with the output on the display that low vision or blindness in fact is at once a barrier to access. In a program like ITP students and faculty will be required to use their computers for a variety of tasks. Naturally, the university intranet is essential for certain key information used for registering, selecting a class, submitting and viewing grades, searching, and other functions. Consequently, denied access to the technology would fundamentally discriminate against the individual whose disability prohibits them from seeing the contents of a computer display, and indeed, even low vision presents a problem when the small screen of a notebook is used. Another group that needs to be considered with the blind/low vision group is the learning disabled, who often experience visual perception disorders that cause problems not unlike those faced by blind/low vision students – fortunately, to a limited degree, some similar modifications can also be used.

The Challenge of Accommodating the Physically Impaired

Those students and faculty members with physical impairments,, as well as low vision/blindness, that would otherwise prevent them from entering input on the computer's keyboard would also be subject to discrimination if reasonable and appropriate accommodations were not provided. While most individuals in this group can receive and use requested information as it appears on screen, getting data there poses the greatest challenge for individuals who have had amputations, strokes, spinal cord injuries or birth defects. The smaller size of notebook computers compound a problem that is present with desktops. Again, CCSU sought solutions.

The following conclusions were reached by CCSU:

The problems of access to ITP seemed to be problems with input and output of data for specific groups of individuals with disabilities.

Software and/or hardware that provides alternative methods for input and output was indicated.

A stock of software/hardware was needed that would allow individualized customization of notebook computers immediately upon the recommendation of the Disability Services Coordinator.

THE OPPORTUNITIES

Faced with these challenges, CCSU's Disability Services Coordinator (DSC) was compelled to seek acceptable, reasonable, appropriate and cost effective strategies for accommodating the disabled. The initial examination of the challenges having revealed data input and output as the two primary modalities requiring modification, the DSC began researching various products to ensure total and equal access to ITP.

Input Modifications

The most challenging task was deciding which of the many data input products would accommodate the widest range of disabilities in a timely, on-demand and cost effective manner. After reviewing and using several different products, the DSC chose IBM's Simply Speaking Gold. This choice has been questioned a few times, but when compared to other voice recognition programs in consideration of the number of students who were projected to request this modification, the IBM product met all the criteria more completely.. Six copies were purchased from a local Comp USA, and all copies are retained in the DSC's office. After the DSC has determined that voice recognition is a reasonable and appropriate accommodation and makes such a recommendation, one of the software packages will be installed on the student's notebook computer. At approximately 100 dollars each, with the ability to assist a wide range of disabled student needs, the IBM product, for the present, is serving students well.

Output Modifications

Less challenging, but nevertheless equally as significant, was purchasing a product that would modify output, which consist mostly of text on the display. Some of the programs considered were Arkenstone's OPENBOOK, Henter-Joyce's JAWS and AI Squared's ZOOMTEXT EXTRA. Since the Zoomtext program uses the notebook's pre-installed sound card rather than a separate device like DECTALK, the AI Squared product seem to most readily meet the criteria. Cost, ease of installation and use as well as navigation and screenreading capabilities placed this product in the lead soon, and when the screen enlargement aspect was considered, Zoomtext was obviously the product with the most versatility and user friendly functionality in addition to meeting our criteria. Thus far, students requiring modified data output have been adequately served.

Supplemental accommodations

In addition to readily available software for installation on disabled students' notebooks, existing desktops in the Disability Services Lab also provide and even enhance students' equal access. The Lab has a Pentium with 21" monitor, scanner and printer that is used with the new version of Arkenstone's OPENBOOK, which is an optical character recognition system that allows students to hear text as well as view or print the text after scanning the page(s). In addition, AI Squared's VISIBILITY program provides enlargement up to 30x for scanned text, which can also be read via the voice synthesizer or printed in the enlarged format.

CONCLUSION

Students with practically any type of disability that limits their ability to access data so vital to ITP and to their learning at CCSU can now are accommodated. With students now being able, and in some instances required, to navigate the campus intranet to register, check on class status and grades, financial aid status, class standing and so on *ad infinitum*, total access is a must. So much of the coursework at CCSU is either already provided on-line or is scheduled to be offered electronically soon, that the campus intranet is often much more comfortable and friendly than the internet, especially for computer user newbies. Furthermore, successful navigation of the campus intranet is often students' springboard to cyberspace. Clearly, denying students with disabilities access to computer technology by not modifying input and output modalities indeed denies them participation in any program at CCSU given the institution's commitment and implementation of such an extreme and innovative technological directive. Of course whether more learning actually happens will have to be determined during the post-evaluative phase of institutional measurement; however, students with disabilities achieve more learning immediately. Disabled students not only *have* access to information that previously remained obscure, they now are *learning* various ways *to access* that information.